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## **Roadmap for translating genomic evidence to clinical interventions for prevention and treatment**

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**Introduction:** Genomic medicine can enhance prevention and treatment. However, the translational process for diverse populations remains unclear. We have assembled a workgroup to establish a roadmap for translating polygenic risk scores (PRS) for lung cancer and smoking cessation in a clinical intervention to motivate prevention and treatment in primary care.

**Methods:** To enable a genomic intervention, we developed a framework and workflow to conduct 1) genotyping, 2) genetic imputation, 3) construction of polygenic risk scores in diverse populations, 4) calibration between a reference and a local sample, 5) threshold setting for risk categorization, and 6) delivery of personalized genetic risk based on best practices of communication.

**Results:** First, we compared polygenic risk scores created based on ancestry specific vs. trans-ancestry genome wide association studies and their association with lung cancer and smoking cessation phenotypes using data from the UK Biobank. Second, we calibrated the PRS between a reference population and a local population who would receive the genomic intervention. Third, we compared different PRS thresholds for converting a continuous risk to risk categories in order to motivate health behaviors such as lung cancer screening and tobacco treatment in high risk primary care patients.

**Conclusion:** Leveraging multi-disciplinary expertise in discovery genomics, genomic risk communication, and smoking cessation, our workgroup has built an innovative platform for ongoing updates and translation between genomic discoveries and clinical precision prevention and treatment interventions.